

VOLTAGE CONTROLLED QUADRATURE OSCILLATOR WITH PHASE TUNING

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5 ABSTRACT OF THE DISCLOSURE

A differential two-or-more stage oscillator with precision phase tuning is presented. The phase difference between the stages can be varied by differentially adjusting the propagation delays of each stage. In addition, an injection-locked differential two-or-more stage oscillator with precision phase tuning is presented. The phase relationship between the stages can be altered without altering the frequency of the oscillator by differentially altering input bias voltages coupled to each stage. Additionally, a mechanism for the realization of a self-calibrating image-reject mixer architecture within a radio transceiver utilizing the new oscillator circuits is introduced. The mechanism provides a practical means for allowing a portable wireless device, for example, a cellular telephone, to calibrate its internal receive and transmit image-reject-mixer's phase and amplitude errors without the use of an externally applied test signal.